Serial No.: 09/848,997
Group Art Unit: 2822

REMARKS

Claim Rejections - 35 USC §103

Claims 2-6 are rejected under 35 USC §103(a) as being unpatentable over Levert et al. (USPN 6,407,006, hereinafter "Levert") in view of Halley (USPN 6,361,647, hereinafter "Halley").

Pertaining to claims 2-6, the independent claim 2 has now been clarified to amend the previously claimed combination to now include the limitation that:

> "applying heat to the ILD layer on the semiconductor wafer using the mechanical device simultaneously with the applying the mechanical pressure to cause reflow of the ILD layer in a thermal mechanical planarization process." [underlining for clarity]

The support for the amendment is on page 5, lines 5-6:

> "A thermal mechanical planarization process is then applied to cause reflow of the low-k dielectric material."

In the preamble to the claim, the ILD layers have been singularized to provide the antecedent basis for "the ILD layer" in the remainder of the claims.

Halley discloses a chemical mechanical polishing method in which material is removed from a semiconductor wafer as indicated in the Halley Abstract:

> "A chemical mechanical polishing method...includes iteratively selecting...performing a polish, inspecting the removal profile, and repeating until...the removal profile is attained." [deletions for clarity]

Levert, which teaches a mechanical planarization process, specifically teaches those having ordinary skill in the art away from using a chemical mechanical polishing process in Levert, col. 2, line 50, through col. 3, line 3:

> "Chemical mechanical polishing (CMP) is another known method... Further, these previous methods are inadequate for providing localized planarization..."

It is respectfully submitted that a method, which teaches removal of material, and a method, which teaches not to remove material, teach away from each other and would create an inoperative method. Thus, the proposed combination is governed by *In re* Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984) where the CAFC stated:

> "We have noted elsewhere, as a "useful general rule," that references that teach away cannot serve to create a prima facie case of obviousness... If

> references taken in combination would produce a "seemingly inoperative device, " we have held that such references teach away from the combination and thus cannot serve as predicates for a prima facia case of obviousness." [deletion for clarity]

Based on the above, it is respectfully submitted that claims 2-6 are unobvious under 35 USC §103(a) over Levert in view of Halley.

Claims 8-14 are rejected under 35 USC §103(a) as being unpatentable over Levert et al. (USPN 6,407,006, hereinafter "Levert") in view of Oaks et al. (USPN 6,083,661, hereinafter "Oaks") and Halley (USPN 6,361,647, hereinafter "Halley").

Pertaining to claims 8-14, the independent claim 8 has now been clarified to amend the previously claimed combination to now include the limitation of reflow of the ILD layer in a thermal mechanical planarization process.

As discussed above for claim 2, Levert and Halley teach away from being combined. Levert and Oaks do not teach, or suggest rotary and traverse motion, and Oaks col. 17, lines 10-13, more specifically discloses an infrared heat curing process, which does not teach or suggest reflow of the Oaks resin film in a thermal mechanical planarization process:

> "One may also cure the resin film in an infrared belt furnace. A suitable furnace and procedure are disclosed in P. E. Garrou et al., Rapid Thermal Cure of BCB Dielectrics, Proceedings ECTC, San Diego, May 1992, pp. 770-776. A Radiant Technology Corporation Model No. LA-306 infrared belt oven may be used with a nitrogen atmosphere..." [underlining and deletions for clarity]

It is respectfully submitted that Levert, Oaks, and/or Halley in combination do no disclose, teach, or suggest the combination including the claimed limitation.

Based on the above, it is respectfully submitted that claims 8-14 are unobvious under 35 USC §103(a) over Levert in view of Oaks and Halley.

The other references cited by the Examiner showing the prior art have been considered and are not believed to disclose, teach, or suggest, either singularly or in combination, Applicants' invention as claimed.

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Conclusion

In view of the above, it is submitted that the claims are in condition for allowance and reconsideration of the rejections is respectfully requested. Allowance of claims 2-6 and 8-14 at an early date is solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including any extension of time fees, to Deposit Account No. 50-0374 and please credit any excess fees to such deposit account.

Respectfully submitted,

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